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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,995	10/29/2003	O-Hyun Beak	1349.1315	5309
21171	7590	10/03/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			DO, AN H	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,995

Applicant(s)

BEAK, O-HYUN

Examiner

An H. Do

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-53 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 8-17, 19-30 and 32-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Cornell et al (US 5,774,148).

Cornell et al disclose in Figures 3A-7 the following claimed features:

- Regarding claims 1, 12, 25, 37, 44, 49, 52 and 53, an inkjet print head chip (Figure 3A, chip 13) usable in an inkjet print head (Figure 7, printhead 7), comprising:
- a semiconductor substrate (Figure 3A, semiconductor chip 13, column 4, line 42);
 - a plurality of MOSFETs (25) formed on the semiconductor substrate (chip 13);
 - first metal wiring layers (conductive layers 46) which apply a signal to the plurality of MOSFETs (25);
 - a first insulation layer (protective layer 48) formed on the metal wiring layers (46);

- a plurality of heaters (Figure 5, heaters 1) formed on the first insulation layer (48), and activated by the MOSFETs (25) to heat ink;

- second metal wiring layers (resistive layer 44) formed in the first insulation layer (48) underneath the plurality of heaters (1), and externally radiate some of the heat generated by the plurality of heaters (1);

- a second insulation layer (50) formed on the plurality of heaters (1) and preventing the plurality of heaters (1) from coming into contact with the ink; and

- a shock-blocking layer (Tantalum layer 51) formed on the second insulation layer (50) which blocks shocks occurring when the bubbles resulting from the heated ink collapse (column 5, lines 26-29).

Regarding claims 2-6, 13-17, 26-30 and 38-40, further comprising heat radiating parts (Figure 3B shows heater 1 with both sides of heat radiating parts) to which the metal wiring layers are connected.

Regarding claims 8 and 19, wherein the metal wiring layers (44, 46) are formed of one of aluminum (Al) and an aluminum alloy (column 5, lines 13-15).

Regarding claims 9, 22, 34 and 41, wherein the plural heaters (1) are provided in two adjacent linear arrays (Figure 3A shows two arrays of heaters 1).

Regarding claims 10, 11, 23, 24, 35, 36, 42, 43, 50 and 51, wherein the metal wiring layers (44, 46) absorb residual heat after the heaters (1) are deactivated to decrease an amount of the residual heat transferred to the ink and to decrease a time required for the plural heaters to return to a ready state (column 4, lines 13-21).

Regarding claims 20 and 32, wherein the first insulation layer includes two layers, an upper layer (42) on which the metal wiring layers are mounted is formed of SiO₂ and a lower layer is formed of BPSG (39).

Regarding claims 21 and 33, wherein the second insulation layer is formed of SiN (column 5, lines 24-25).

Regarding claims 45 and 46, wherein the number of heat radiating parts and the number of the heating parts are the same as the number of metal wiring layers (Figure 3B).

Regarding claim 47, further comprising a logic part (column 1, lines 27-33) which controls the heaters (1).

Regarding claim 48, further comprising an address part (Figure 3A, address lines 23) which transfers control signals from the logic part to one or more MOSFETs (25) which control an electric current flowing to the heaters (1) according to the control signals from the logic part.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7, 18 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cornell et al (US 5,774,148) in view of Silverbrook et al (US 6,273,544).

Cornell et al disclose the claimed invention except for reciting the heaters are formed of TiN.

Silverbrook et al teach in Figure 54 that the heaters are being formed of TiN.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the heaters made of Tin, as taught by Silverbrook et al into Cornell et al, for the purpose of obtaining low resistivity of the metal so not to cause problems with the bond pad resistance (column 11, lines 50-52).

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143. The examiner can normally be reached on Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



An H. Do
September 29, 2005